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ABSTRACT

This study investigated the effectiveness of a library program utilizing learning centers combined with cooperative learning groups to teach research skills. Thirty-four fourth-grade students were randomly assigned to one of two groups. Students in Group A, the experimental group, were taught research skills in the library by progressing through six instructional learning centers in small cooperative groups over a 6-week period. The centers concentrated on the acquisition of specific research skills and were attentive to levels of ability and learning styles. Group B, the control group, received traditional classroom instruction on research skills. All subjects were then administered the SRA Achievement Test, and an analysis of the test scores on the reference materials portion indicated that Group A scored significantly higher than Group B. The results suggest that a library instructional center which provides multiple techniques and methods to meet various learning styles and levels of ability to teach research skills did have an impact on student achievement. The appendix includes a description of the learning centers and activities. (20 references) (Author/MES)

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THE COLLEGE OF EDUCATION

THE EFFECTIVENESS OF TEACHING RESEARCH SKILLS IN LIBRARY INSTRUCTIONAL CENTERS THROUGH COOPERATIVE LEARNING GROUPS

A RESEARCH REPORT

Submitted in Partial Fulfillment Of The Requirements For

MASTER'S SEMINAR 5923

BY

SANDRA MCNEELY

Prairie View, Texas

1988

IR052587

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Sandra McNeely, Media Specialist, Cypress Fairbanks I.S.D.

THE EFFECTIVENESS OF TEACHING RESEARCH SKILLS IN LIBRARY INSTRUCTIONAL CENTERS THROUGH COOPERATIVE LEARNING GROUPS

This research study investigated the effectiveness of a library program utilizing learning centers combined with cooperative learning groups to teach research skills.

Thirty-four subjects were selected from among 56 fourth grade students at Yeager Elementary School, C.F.I.S.D., Houston, Texas, during the 1987-88 school year. Those 34 were randomly assigned to one of two groups: Group A, the experimental group, and Group B, the controlled group.

The former was taught research skills in the library by progressing through six instructional learning centers in small cooperative groups, over a six week period. The centers concentrated on the acquisition of specific research skills and were attentive to levels of ability and learning styles. During the same time, Group B received traditional classroom instruction on research skills.

All subjects were administered the SRA Achievement Test, and an analysis of the test scores on the reference materials portion indicated that Group A, with a mean score of 83.4%, scored significantly higher than Group B, which had a mean score of 69.2%.

The results of this study suggested that a library instructional center, which provides multiple techniques and methods to meet various learning styles and levels of ability to teach the acquisition of research skills, did have an impact on student achievement in those skills.

(Statistical analysis of test scores and results are available for examination.)

ACKNOWLEDGEMENTS

To my biggest supporters, my husband and son, I wish to express my love and appreciation for their encouragement and faith in me to complete this phase of my graduate work. I am especially thankful to my husband who never complained about the long hours and weekends I spent doing research, who proofread for me and helped me along the way; and without his patient cooperation and understanding, my task would have been impossible.

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TABLE OF CONTENTS

List of Figures		iii
List of Tables		iv
CHAPTER		
I.	INTRODUCTION	1
	Statement of the Problem	3
	Significance of the Problem	3
	Hypothesis	4
	Delimitation of the Study	5
	Definition of Terms	5
	Overview of Chapters	6
II.	REVIEW OF RELATED LITERATURE AND RESEARCH	8
III.	DESIGN OF STUDY	18
	Introduction	18
	Procedure	20
	Population	22
	Sample Size	23
	Instrument Design	23
	Description of Instrument	24
	Treatment of Data	25

IV. ANALYSIS OF DATA AND FINDINGS 26

Introduction 26

Analysis of Data 27

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 38

Summary 38

Major Findings 38

Conclusions and Recommendations 39

APPENDIX 42

BIBLIOGRAPHY 53

List of Figures

Figure 1.....Experimental Design..... 20

Figure 2.....Time Schedule..... 22

List of Tables

Table 1 ..... SRA Achievement Test Scores..... 29
on the Reference Materials
Section of Level 34, Form P
Series, Group A.

Table 2 .....SRA Achievement Test Scores..... 30
on the Reference Materials
Section of the Level 34, Form
P Series, Group B.

Table 3 .....Standard Deviations Computed 31
for Group A and Group B

Table 4.....Computation of t-Test..... 32

Table 5.....SRA National Percentile..... 33
Rank Scores for Group A
and Group B

Table 6.....Analysis of Test Results..... 35
According to Specific Skills,
Group A

Table7.....Analysis of Test Results..... 36
According to Specific Skills,
Group B

Table 8.....Comparison of Individual Skill..... 37
Mastery Between Group A and B

CHAPTER I

INTRODUCTION

In an increasingly complex, often confusing, technological world, the necessity of access to the resources and programs of an elementary school library media center cannot be denied (Vandergrift & Hannigan, 1986). School media professionals are continually expressing the belief that good media programs contribute to quality education and are positively related to student achievement.

In view of current national interest in the improvement of student achievement, it is critical that evidence be identified to support the belief that library media programs are an essential component of the total school program, an integral part of the learning process (Mancall, 1986).

Based on the findings and implications in a study conducted by Mancall (1986), differences in student learning styles and cognitive affective development should be investigated as they relate to utilization of and benefit from library media programs.

According to Vandergrift & Hannigan (1986), the elementary school library media center is more than just

a collection of resources. Programs and services that help children develop socially, intellectually, and aesthetically, emanate from the media center and reach all aspects of student life. Each child is encouraged to discover, enjoy, evaluate, and use all types of media and materials, and is assisted in the development of critical skills in reading, listening, and viewing.

In keeping with this philosophy, Media Specialists in the Cypress Fairbanks Independent School District (C.F.I.S.D.) are continually researching, updating, initiating, and implementing library programs. One such program could be the use of library instructional centers for the purpose of teaching research skills. A library instructional center which provides multiple techniques and methods to meet different learning styles and various levels of ability could affect student achievement.

With this in mind, it is the intent of this study to see if implementation of library instructional learning centers, designed for cooperative learning groups to facilitate the learning of research skills, will have an impact on student achievement

STATEMENT OF THE PROBLEM

The purpose of this study is to investigate the effectiveness of teaching research skills in library instructional centers designed for cooperative learning groups.

SIGNIFICANCE OF THE PROBLEM

For many years, elementary and high school librarians have conscientiously taught library skills to their students. However, students continue to have difficulty using the library for their research assignments. Mastery of research is essential if students are to become independent adult users of library facilities.

The concept of an instructional learning center designed for cooperative learning groups could be an effective approach to facilitate the learning of research skills. Differences in student learning styles and cognitive development, as they relate to utilization of and benefit from library instructional centers, should be investigated.

The C.F.I.S.D. in which this researcher is employed is initiating the use of library instructional centers, and this researcher is challenged to determine the effectiveness of such a library based motivational program to teach the acquisition of research skills.

HYPOTHESIS

It is hypothesized that there will be no significant difference in the SRA Achievement Test scores between fourth grade students subjected to library instructional centers, utilizing small cooperative groups to teach research skills, and fourth grade students that are taught research skills using a traditional method of instruction.

DELIMITATION OF THE STUDY

This study is limited to 34 fourth grade students at Yeager Elementary School during the 1987-88 school year. Yeager Elementary School is part of the C.F.I.S.D and is located in Houston, Texas.

DEFINITION OF TERMS

1. Learning Centers - an area in the library media center where students are assigned to the acquisition and practice of research skills.
2. Cooperative Learning Groups - students work on learning activities in small groups and receive rewards or recognition based on their group's performance.
3. Traditional Method - students work by themselves to accomplish learning goals, unrelated to those of other students.
4. SRA Achievement Series - battery of norm-referenced, standardized tests in basic curriculum areas for grades K-12. It is designed to survey students' general academic achievement.
5. Reference Materials test portion - Level 34, Form P is a 34 item test, covering basic library skills such as table of contents, guide words, pronunciation key, dictionary use, encyclopedia, format, index, card catalog,

research sources, maps, and table interpretation. All questions are multiple choice, and the subject is limited to 25 minutes to complete this section of the test.

OVERVIEW OF CHAPTERS

The chapters to follow will include a review of related literature and research, a design of the study, an analysis of significant data and findings, a summary, a conclusion, and recommendation.

Chapter One presents the statement of the problem, the significance of the problem, the hypothesis, the definition of terms, and an overview of chapters.

Chapter Two contains an extensive review of the related literature and research on learning centers and cooperative learning groups within the educational system and their effects on student achievement.

Chapter Three will give a description of the study conducted. This description will include the procedure, population, sample size, instrument design, description of the instrument, and analysis of the data.

Chapter Four will include a detailed analysis of the data and findings resulting from the study.

Tables and figures giving specific statistical information collected will also be provided.

Chapter Five will conclude the study with a summary, conclusion, and recommendation based on the findings of the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

A review of related literature cites articles and studies that focus on the effectiveness of instructional learning centers and cooperative learning groups in today's educational curriculum.

Learning centers have long been an integral part of the educational scene. Their roots can be found in the work of educators like Pestalozzi, who believed that children learn through direct interaction with other children and their environment (Myers, 1987).

Research by Currey and Hancock (1978) resulted in the development of a booklet which described the development of interest centers and skills games to instruct children in media skills. During this same period, Freeman (1977) provided a curriculum guide to assist the librarian and classroom teacher in designing learning activities for all elementary school students, which would reinforce the use of essential library skills.

Cooperative learning is an old idea in education which has experienced a substantial revival in educational research and practice in the past few years (Slavin, 1980).

In the past decade, research conducted by Dunn and Dunn (1978) verifies that the learning styles of many youngsters are best served if they are often permitted to work in groups. Many students respond best to a learning situation that involves two to five of their peers. Some of these children may feel intimidated, anxious, or overly directed by adults, and therefore need the interaction of friends to stimulate them to learn. Others are motivated by a team effort. Many relax when a group, rather than each of them individually, is responsibile for a task (Dunn and Dunn, 1978).

Let it be further validated by these researchers that small group techniques are essential to building independence and for responding to those youngsters whose learning style clearly indicates a need to work with peers. Many students who do not do well in school are tactual or kinesthetic learners. These children tend to acquire and retain information or skills when they are involved either with handling manipulative materials or by participating in concrete real life activities (Dunn and Dunn, 1978).

Three outcomes of cooperative learning are emphasized by Slavin (1980): academic achievement,

race relations, and mutual concern among students. In in his research, Slavin (1980) justifies the following important conclusions: for academic achievement, cooperative learning techniques, in most cases, are significantly better; for low level learning outcomes, such as application of principals, cooperative learning techniques appear to be more effective than traditional techniques.

Much research has validated the evidence which supports the use of cooperative learning procedures. Johnson and Johnson (1984) state that in cooperative learning, as opposed to competitive and individualistic learning, students work together to accomplish shared goals. It is the most important of the three types of learning, but least used. Research indicates "students will learn more, like school better, and learn more effective social skills when cooperative learning is used" (Johnson and Johnson, 1984, p. 2).

In a more recent investigation on cooperative learning, Slavin (1984) suggests that student motivation is influenced in part by classroom incentives, but also by such factors as intrinsic interest in the task at hand, parents' interest, and students' perception of their abilities and chances of success. "Students who

are unmotivated to learn do not learn" (Slavin, 1984, p. 53).

According to Slavin (1984), the principal idea behind cooperative learning methods is that by rewarding groups as well as individuals for their academic achievement, peer norms will come to favor rather than oppose high achievement. An interesting point made by Colman (1961) that Slavin (1984) cites is that students do not value their peers who do well academically, while they do value their peers who excel in sports. Colman hypothesizes that this is so because success in sports brings benefits to groups (the team, the school, the town), while academic success benefits only the individual (Slavin, 1984).

Slavin (1984) further points out that linking group rewards for individual learning and increased student achievement in cooperative learning groups has its greatest support in the fact that group members try to make the group successful by encouraging each other to excel. This concept promotes positive interdependence, face-to-face interaction, individual accountability, and appropriate use of interpersonal and small group skills (Johnson and Johnson, 1984).

Using cooperative learning groups in library instructional centers to teach research skills could have an impact on student achievement. As defined by Dunn and Dunn (1978), an instructional area where students may congregate to learn is called an interest center. It should house interdisciplinary resources concerned with a selected theme or unit of study such as resource skills. In addition to media resource materials, students might find small group assignments such as team learning, circles of knowledge, brainstorming, and games (Dunn and Dunn, 1978).

According to Dunn and Dunn (1978), interest centers serve many purposes: they are available as another option for students--an alternative way of obtaining information and concepts, and they build small-group activities into the learning process to provide social interaction and group achievement. Interest centers, therefore, permit a teacher to begin to take advantage of individual learning styles by providing students with a choice of either working independently or with a group. Many youngsters prefer working with others. Even those students who seem to think best while working on independent units often need to interact with others in order to test ideas and to grow (Dunn and Dunn, 1978).

Having a flexible schedule in library media centers will help to accomodate the use of small groups in instructional centers in the acquisition of library and research skills. If such instructional centers are to be effective, then students must be permitted to leave their areas and go to the location of the centers. A constant flow of incoming and outgoing students will exist. Students should be free to join each other in viewing, discussing, studying, or analyzing materials (Dunn and Dunn, 1978). Flexible scheduling is educationally sound as it allows students, small groups, and entire classes to use the media center (Toor, 1987).

The relationship between school library media programs and the development of critical thinking skills by students has become an educational focus. In her doctoral study on critical thinking, Jay (1986) states that if instruction is scheduled for small groups, learning activities can be tailored to ability level. Working with small groups facilitates focusing student attention on metacognitive skills. This permits students to verbalize and to share their thinking processes. Hands-on practice cannot be done with an entire class group and one library media teacher. In her conclusion, Jay (1986) emphasizes the importance of metacognition:

the ability to transfer problem solving strategies from one situation to another is the ultimate educational goal. Many short projects result in greater learning than one long paper. It is the process that needs to take priority over the product (Jay, 1986).

Traditional skills instruction frequently gets bogged down in teaching students to locate materials rather than asking them to use or apply information in some way (Jay, 1986). Students should be encouraged to discuss their own thinking about the metacognitive variables, and receive feedback from other students. Pairs of students or small groups working together give students a chance to teach and learn from each other with less-skilled students given a chance to learn from their more capable peers (Bertland, 1986).

Research verifies that students should have opportunities to solve information related problems in groups (Mancall, Aaron, and Walker, 1986). This research defines metacognition as thinking about thinking. Library media personnel support programs dedicated to the development of thinking skills by providing various learning alternatives and accommodating individual and small group needs. "On both an individual and a

small group basis, library media specialists systematically offer instructional opportunities to help students locate, organize, analyze, evaluate, synthesize, and utilize information as needed to make rational decisions" (Mancell, Aaron, and Walker, 1986, p. 20).

The findings of educational researcher, Wray (1988), suggest that one of the most useful opportunities for teaching information skills can be some form of project work. This technique is much used in British primary schools.

In another study, Johnson and Johnson (1986), concluded that having students work together is much more powerful than having students work alone, competitively, or individually, and that students are motivated to learn while working together.

In a recent journal article, Hammond (1987) describes a program in which primary grade students are introduced to research techniques and tools through a carefully planned sequence of encounters with library research and reference aids.

Research by Kullesid (1986) further emphasizes the importance of verbal interaction between small groups of students as a basic program component in library media programs.

According to Kuhlthau (1987), knowing something about cognitive development can help to design research assignments that promote satisfying learning. "When research assignments match stages of children's cognitive development, they are more satisfied with their learning, and are more confident in their ability to use the library" (Kuhlthau, 1987, p. 46). Librarians can help teachers by suggesting alternative assignments when abilities required in the assignment are beyond the children's current developmental stage (Kuhlthau, 1987). One such alternative could be instructional centers combined with cooperative learning groups.

Learning centers can offer responsive possibilities for teaching a complex mixture of skills, subject content, and character traits. Learning centers are attentive to the developmental levels, interests, learning styles, and needs of individual children in the groups (Myers, 1987). What is introduced during a classroom or in a library period can be reinforced when students come back for independent or group research (Krapp, 1988).

Research confirms that librarians should examine and update instructional programs to improve achievement, retention, and application of library skills (George, 1981).

In an investigation by Schon (1984) of a special program on library use, the experimental group was given thirty minutes of special treatment partaining to library topics and follow up activities over a twenty week period. The results show that the experimental group greatly and significantly exceeded the control group on library media center use.

School librarians are expected, and often mandated to teach basic research skills. "Mastery of these skills is essential if students are to become independent adult users of library facilities, able to pursue academic studies, or to simply explore the wide range of recreational reading materials" (Krapp, 1988, p. 32). Review of related literature not only supports but validates a need for cooperative learning procedures in small groups in the acquisition and application of library information skills.

CHAPTER III

DESIGN OF STUDY

INTRODUCTION

The review of related literature clearly sets the focus on designing teaching curriculum around information skills with developmental levels of children in mind. Evidence collected in the preceding research studies also confirms and verifies that teaching research skills using a variety of connections between learning styles, teaching strategies, and the resources of the school library media center is indeed effective. With this knowledge in mind, this researcher will investigate the effectiveness of teaching research skills in small cooperative learning groups in library instructional centers to improve student achievement.

To conduct this experimental study, the researcher worked with two groups. Group A was composed of 17 average on-level fourth grade students. This group was taught research skills by progressing through instructional learning centers in small cooperative groups. Group B was composed of 17 average on-level fourth grade students.

This group was taught research skills using the traditional method of instruction.

The purpose of this study is to determine if a significant difference will exist between the two groups on the reference portion of the SRA Achievement Test. Permission to conduct this study, using select SRA scores has been obtained from Mrs. Margaret Gleason, Principal at Yeager Elementary School (see Appendix A).

The design used in this study was the posttest-only control group design (see Figure 1). This design was selected because of the feasibility of randomization and the need to only compare posttest scores to determine effectiveness of the treatment. The design does well in controlling for sources of internal and external validity; it does not, however, control for mortality. This potential threat was not a problem, as study was relatively short, and the group composition remained constant throughout the duration of the study.

FIGURE 1

EXPERIMENTAL DESIGN

Group	Selection/Assignment	Treatment	Posttest
A n 17	Random	Cooperative Groups-Instructional Learning Centers	SRA Achievement Test, Level 34, Form P
B n=17	Random	Traditional Classroom Instructional Program	SRA Achievemen Test, Level 34 Form P

PROCEDURE

Subjects in the experimental group, group A, were divided into four small cooperative learning groups. Over a six week period, these small groups progressed through six learning centers. Each group spent approximately two 25 minute blocks of time in each learning center. The centers were designed to concentrate on the acquisition and application of specific library skills to be measured on the SRA Achievement Test. Those skills are table of contents, encyclopedia, card catalogue, dictionary, table interpretation, index, and maps.

Treatment began on January 26, 1988, for subjects in the experimental group. The instructional centers were very flexible, permitting the cooperative groups time to explore the library, discover and evaluate various forms of media and materials, and engage in social interaction with peers. As the centers were gamelike and involved manipulative materials, they also accommodated the needs of kinesthetic learners.

During the same period of time, subjects in the control group, group B, received traditional classroom instruction on library and research skills. Those specific skills to be measured on the SRA Test were introduced in the classroom--not the library, and skills activities were reinforced by the utilization of worksheets, with several follow-up visits to the library.

On March 10, 1988, the SRA Achievement Test was administered to all subjects in groups A and B. The subjects were administered on a group basis by the counselor. The results were tabulated and recorded, and the scores of the experimental and control groups were compared.

FIGURE 2

TIME SCHEDULE

Activity	Dates
Selection of Subjects	January 4, 1988
Introduction & Explanation of Cooperative Learning Groups	January 19, 22, 1988
Learning Centers Activities	January 26, 28 February 2, 4, 9, 11 16, 18, 23, 25
Administration of SRA Test	March 1, 4 March 10, 1988
Preparation of Report	Ongoing--completed by May 7, 1988.

POPULATION

The population for this study included approximately 56 average, on level students enrolled in the fourth grade at Yeager Elementary School during the 1987-88 school year. The school population as related to socio-economic background is predominantly white, upper-middle class, and quite stable.

In the C.F.I.S.D., the SRA Achievement Test is administered to all second, fourth, and fifth year students in the Spring of each school year. Fourth grade students were selected to the study because they were the only grade administered the reference materials portion of the SRA.

SAMPLE SIZE

Thirty-four subjects were selected from three average, on level, language arts classes, using cluster sampling. Those 34 were randomly assigned, (using a table of random numbers), to one of two groups: Group A (N_1=17) and Group B (N_2=17). The subjects of both groups were considered academically able, and each group displayed average study habits.

INSTRUMENT DESIGN

The SRA Achievement Test was administered to fourth grade students on March 10, 1988. Test scores on the reference materials portion of this standardized test were used to determine if fourth grade students taught research skills in library instructional centers through

cooperative learning groups scored significantly higher than students taught research skills in a traditional manner.

The level of SRA Achievement Test used was Level 34, Form P. Content validity and equivalent forms reliability have been established for the SRA Test. A detailed description can be found in the Survey of Basic Skills Technical Information Report issued by the SRA Achievement Series committee, copyright, 1985. A description may also be found in Buros, Seventh Yearbook, #18. Science Research Associates Test (SRA) is authored by Louis P. Thorpe, D. Welty Lefever, and Robert A. Naslund, Science Research Associates, Inc.

DESCRIPTION OF THE INSTRUMENT

Level 34, Form P, the reference materials portion of the SRA Achievement Test contains 34 items covering basic library skills and application of those skills. The subtest measures the student's ability to locate information through knowledge of alphabet skills, standard reference and research sources, the dictionary, the parts of a book, and maps, graphs, and tables.

TREATMENT OF THE DATA

The SRA Achievement Test scores on the reference materials section are directly compared using an independent t-test with a .05 probability level. An overall score of the entire reference materials section is compared.

CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

INTRODUCTION

The purpose of this study is to determine if students who are taught library and research skills in library instructional centers through cooperative learning groups, show a significant difference in test scores on the reference materials section of the SRA Achievement Test, from those students taught library and research skills using a traditional method of instruction. A total of 34 fourth grade students at Yeager Elementary School were chosen for the study. Out of three average on level language arts classes, two groups were selected through random sampling. Each group consisted of 17 students. Group A was taught research skills in the instructional centers, while Group B was taught with a traditional method of instruction. Data was collected and analyzed in order to determine if there was a significant difference between the scores of the two groups.

ANALYSIS OF DATA

The fourth grade students involved in this study were administered the SRA Achievement Test on March 10, 1988. To determine the significance in this study, the researcher ran a t-test for Independent Samples. To apply the t-test, the researcher first listed the overall percentage scores for each member of Group A and each member of Group B. The scores were squared for later use in computing t. National SRA percentile scores were also listed in rank order for comparison. A mean and sum of squared scores were determined for each group (see Tables 1 and 2). The sum of scores was divided by 17 in each group to determine the mean score. Group A had an overall mean score of 82%, and Group B had an overall mean score of 72%. This shows a difference of 10%.

The mathematical process of computing t was calculated (see Table 4). After computing the sum of squares for Groups A (X_1) and B (X_2), determining the degrees of freedom, and using the mean scores from Tables 1 and 2, the formula for computed t could be worked through. A level of confidence was set at .05. The Degrees of Freedom were 32. Computed t was 2.97.

Table t for df 30 was 2.042. Therefore, computed t (2.97) is greater than Table t (2.042) indicating a significant difference between Groups A and B. The stated hypothesis is rejected.

TABLE 1

SRA Achievement Test scores on the Reference Materials Section of the Level 34, Form P series given March 10, 1988. Determination of Mean, Sum of Scores, and Sum of Squared Scores.

GROUP A

NUMBER OF STUDENTS	% SCORES	SCORES SQUARED
1.	97	9409
2.	91	8281
3.	91	8281
4.	91	8281
5.	88	7744
6.	88	7744
7.	88	7744
8.	85	7225
9.	82	6724
10.	82	6724
11.	79	6241
12.	79	6241
13.	76	5776
14.	76	5776
15.	74	5476
16.	71	5041
17.	62	3844
	$EX_1 = 1400$	$EX_1^2 = 116.552$

MEAN $= \overline{X}_1 = 82.35$

Sum of Scores = 1400

Sum of Squared Scores = 116,552.00

TABLE 2

SRA Achievement Test Scores on the Reference Materials Section of the Level 34, Form P Series given March 10, 1988. Determination of Mean, Sum of Scores, and Sum of Squared Scores.

GROUP B

NUMBER OF STUDENTS	% SCORES	SCORES SQUARED
1.	85	7225
2.	85	7225
3.	82	6724
4.	82	6724
5.	82	6724
6.	79	6241
7.	79	6241
8.	76	5776
9.	74	5476
10.	74	5476
11.	71	5041
12.	71	5041
13.	65	4225
14.	59	3481
15.	56	3136
16.	53	2809
17.	50	2500
	$EX_2 = 1223$	$EX_1^2 = 90,065$

MEAN = $\overline{X}_2 = 71.94$

Sum of Scores = 1223

Sum of Squared Scores = 90,065

TABLE 3

STANDARD DEVIATIONS

GROUP A

$$SD = \sqrt{\frac{SS}{N-1}}$$

$$SS = EX^2 - \frac{(EX)^2}{N}$$

$$SS = 116{,}552.00 - \frac{(1400)^2}{17}$$

$$SS = 116{,}552.00 - \frac{1960000}{17}$$

$$SS = 116{,}552.00 - 115294.11$$

$$SS_1 = 1257.89$$

$$SD = \sqrt{\frac{1257.89}{16}}$$

$$SD = \sqrt{78.618}$$

$$SD = 8.86$$

GROUP B

$$SD = \sqrt{\frac{SS}{N-1}}$$

$$SS = EX^2 - \frac{(EX)^2}{N}$$

$$SS = 90{,}065 - \frac{(1223)^2}{17}$$

$$SS = 90{,}065 - \frac{1495729}{17}$$

$$SS = 90{,}065 - 87984.058$$

$$SS_2 = 2080.942$$

$$SD = \sqrt{\frac{2080.942}{16}}$$

$$SD = \sqrt{130.05887}$$

$$SD = 11.41$$

TABLE 4

Computational Process for Implementing a t-Test for Independent Samples.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\left(\frac{(SS_1 + SS_2)}{(n_1 + n_2 - 2)}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)\right)}$$

$$t = \frac{82.35 - 71.94}{\frac{1257.89 + 2080.94}{17 + 17 - 2}\left(\frac{1}{17} + \frac{1}{17}\right)}$$

$$t = \frac{10.41}{\frac{3338.83}{32}\left(\frac{2}{17}\right)}$$

$$t = \frac{10.41}{\sqrt{(104.3384)(.117647)}}$$

$$t = \frac{10.41}{\sqrt{12.2750}} = \frac{10.41}{3.50} = 2.97$$

$t = 2.97$, $\underline{df} = 32$, $p = .05$ **Degrees of Freedom =**

table value - $\underline{df}$ = 2.042 $n_1 + n_2 - 2 =$

$17 + 17 - 2 = 32$

Level of Confidence = .05

2.97 2.042 **Null Hypothesis is rejected.**

TABLE 5

SRA NATIONAL PERCENTILE RANK SCORES

GROUP A	GROUP B
99	89
94	89
94	85
94	85
92	81
92	81
92	81
89	76
85	72
85	72
81	72
81	67
76	57
76	49
67	44
67	40
53	36

MEAN = $\overline{X_1}$ = 83.4

MEAN = $\overline{X_2}$ = 69.2

In order to analyze the effectiveness of the experimental curriculum, an analysis of individual skills was made. The 34 item section on Reference Materials was divided into the four major skills covered. The skills covered include Research Skills, Dictionary Skills, Parts of a Book, and Maps and Tables. A ratio of number of problems correct to total number of problems on each skill was computed. An overall average for each section of skills for each group was determined (see Tables 6 and 7).

In comparing both groups on each section of skills, Group A, the experimental group, scored higher in every section, than Group B, the controlled group (see Table 8). In Research Skills, Group A scored 17% higher than Group B. There was a 15% difference in Dictionary Skills. Parts of a Book showed an 8% difference, and Maps and Tables showed a 17% difference.

TABLE 6

Analysis of Test Results According to Specific Skills.

GROUP A

SKILLS	RESEARCH SKILLS	DICTIONARY SKILLS	PARTS OF BOOK	MAPS AND TABLES
1.	9/9	8/9	8/8	8/8
2.	8/9	7/9	8/8	8/8
3.	9/9	9/9	8/8	5/8
4.	9/9	8/9	7/8	7/8
5.	9/9	9/9	7/8	5/8
6.	9/9	8/9	6/8	7/8
7.	8/9	8/9	7/8	7/8
8.	9/9	5/9	8/8	7/8
9.	9/9	7/9	6/8	6/8
10.	7/9	7/9	7/8	7/8
11.	9/9	5/9	6/8	7/8
12.	8/9	8/9	7/8	4/8
13.	7/9	7/9	7/8	5/8
14.	7/9	7/9	6/8	6/8
15.	9/9	7/9	4/8	4/8
16.	9/9	5/9	4/8	6/8
17.	7/9	3/9	5/9	6/8
	$\frac{142}{153}$	$\frac{118}{153}$	$\frac{111}{136}$	$\frac{105}{136}$
	.93	.77	.82	.77

TABLE 7

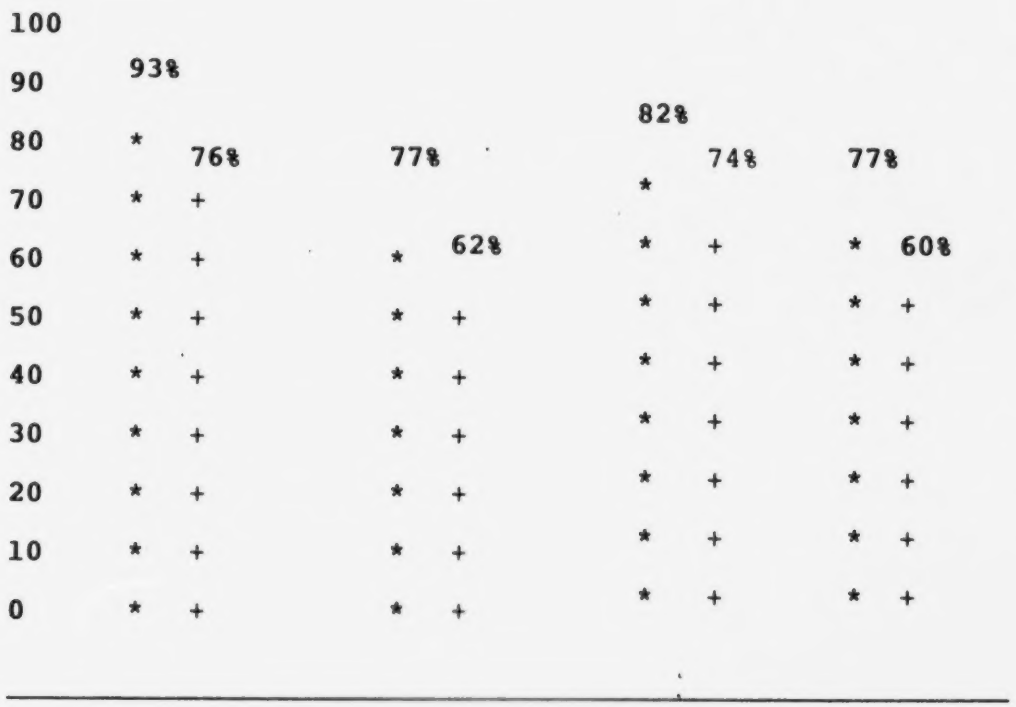
Analysis of Test Results According to Specific Skills.

GROUP B

SKILLS	RESEARCH SKILLS	DICTIONARY SKILLS	PARTS OF A BOOK	MAPS AND TABLES
1.	9/9	8/9	6/8	5/8
2.	7/9	4/9	7/8	4/8
3.	7/9	4/9	6/8	7/8
4.	8/9	6/9	6/8	6/8
5.	9/9	6/9	6/8	6/8
6.	7/9	7/9	6/8	7/8
7.	7/9	6/9	5/8	6/8
8.	4/9	6/9	7/8	6/8
9.	9/9	5/9	8/8	4/8
10.	7/9	6/9	5/8	4/8
11.	6/9	7/9	6/8	5/8
12.	8/9	5/9	5/8	6/8
13.	7/9	6/9	7/8	2/8
14.	5/9	5/9	6/8	4/8
15.	7/9	6/9	5/8	1/8
16.	4/9	4/9	5/8	4/8
17.	6/9	4/9	4/9	5/8
	$\frac{117}{153}$	$\frac{95}{153}$	$\frac{100}{136}$	$\frac{82}{136}$
	.76	.62	.74	.60

TABLE 8

Comparison of Individual Skill Mastery Between Group A and Group B.



* GROUP A

\+ GROUP B

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

SUMMARY

Library media centers in the C.F.I.S.D. are an intregal part of the total school program. School media professionals in this District believe that the ability to find and use information effectively is fundamental for success in a rapidly changing, information-oriented society. With this philosophy in mind, media specialists are continually researching, updating, and initiating library programs to meet the needs of our youngsters and to contribute to quality education.

The purpose of this research study was to substantiate the effectiveness of a library program which utilized learning centers combined with cooperative learning groups in the acuisition of research skills, to validate the incorporation of such a program into the total school program in the C.F.I.S.D.

MAJOR FINDINGS

The research hypothesis for this study, stated that there would be no significant difference found in test scores of students subjected to library instructional centers, utilizing small cooperative groups to teach research skills, and students that are taught research skills using a traditional method of instruction. The hypothesis for the study was rejected. A significant difference was found between the two groups. A t-Test for Independent Samples was run using the test scores of the reference materials section of the SRA Achievement Test. A computed t of 2.97 was greater than the table t of 2.024 (see Table 4). Therefore, Group A performed significantly higher than Group B.

A comparison of scores on individual sections of skills showed a higher percentage score earned by Group A than Group B on each section. An analysis of the SRA national percentile rank scores on the reference materials portion indicated that Group A, with a mean score of 83.4 percent, scored significantly higher than Group B, which had a mean score of 69.2 percent.

CONCLUSION

The results of this study suggest that a library instructional center, which provides multiple techniques and methods to meet various learning styles and levels of ability to teach the acquisition of research skills, did indeed have an impact on student achievement in those skills. The effectiveness of such a library based motivational program has been determined through this study, and the data found is significant enough to encourage use of library instructional centers, designed for cooperative learning groups. Based on these results, this researcher strongly supports the initiation of library instructional centers.

RECOMMENDATIONS

It is the recommendation of this researcher that library instructional centers designed for cooperative learning groups to facilitate the learning of research skills be implemented into the total school program in the C.F.I.S.D. However, further investigations should continue to explore the effects of such library based instructional programs.

The following recommendations point out directions for additional research in the area covered by this study:

1. Library instructional centers, teamed with cooperative learning groups, may be implemented into the library media program at the elementary level.
2. Library instructional centers designed to teach research skills may be a partnership involving both the teacher and the media specialist.
3. The research may be conducted on a greater population.

APPENDIX A

Request of Authorization and Signature of Approval

Yeager Elementary

Margaret Gleason, Principal

13615 Champion Forest Dr.
Houston, Texas 77069

(713) 440-4914

January 6, 1988

Mrs. Margaret Gleason, Principal
Yeager Elementary School
13615 Champion Forest Drive
Houston, Texas 77069

Dear Mrs. Gleason:

I am completing my graduate studies this summer at Prairie View A & M University. As part of my course requirements for Master's Seminar, I am conducting a research study on the effectiveness of teaching research skills in library instructional centers through cooperative learning groups.

I will determine if an average on level fourth grade language arts group, taught research skills in library instructional learning centers designed for cooperative learning groups, will score significantly higher on the reference material portion of the SRA Achievement Test than a comparable group of fourth grade students taught research in a traditional manner. To accomplish this, I need your permission to review the SRA scores of the fourth grade students involved in the study. These scores will be the collected data for analysis in my research. All SRA score information will be kept confidential, and there will be no use of student names in the report.

I would appreciate your approval in this matter by indicating in the appropriate space below.

Sincerely,

Sandra McNeely

Sandra McNeely

Approved Margaret Gleason 1-6-88

Cypress-Fairbanks Independent School District

Donald O. Thornton, Superintendent

APPENDIX B

Description of Learning Centers

LEARNING CENTER # 1

MEDIUM: **"C C WORM" Card Catalog Game**

Contents: game board
instructions
cards / black out cards
markers to represent players

Number of
Players: 2 - 5

Age Group: 2nd to 5th grade

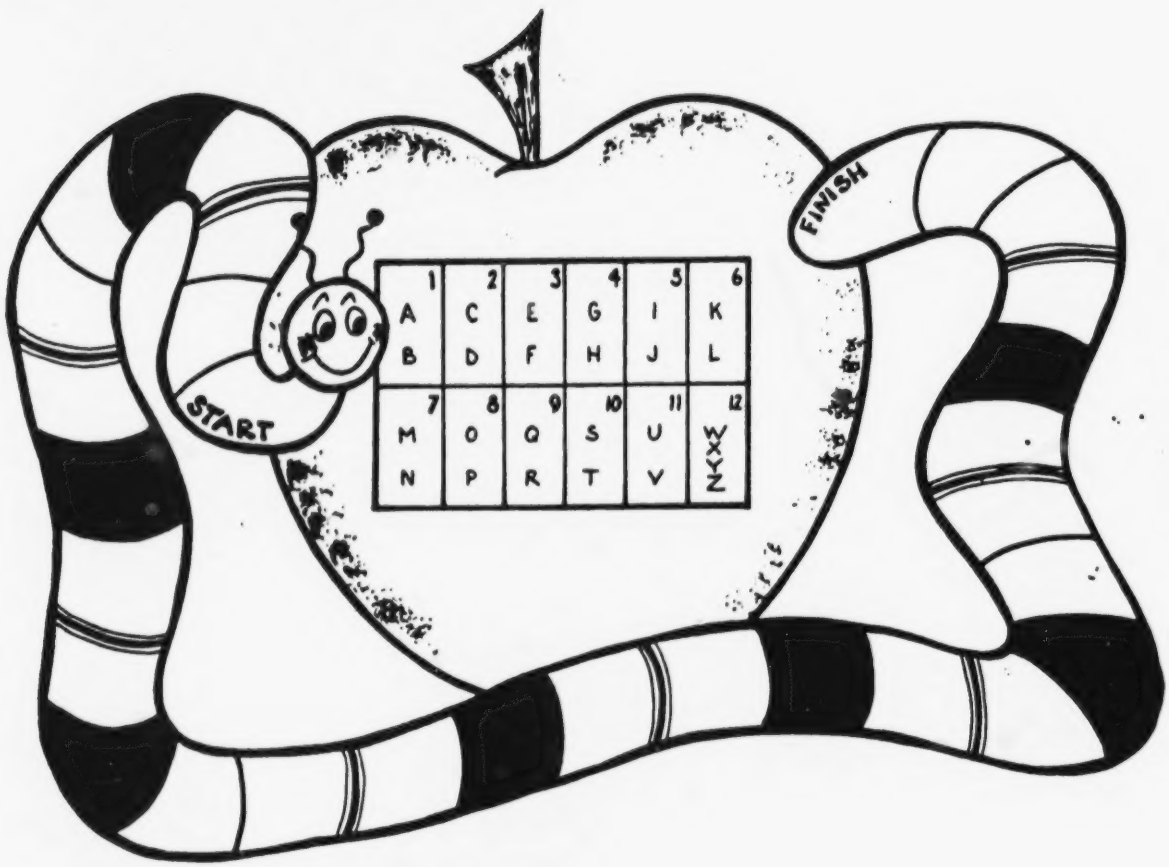
OBJECTIVE: **to introduce the arrangement of the card catalog and to learn the 3 types of cards in a card catalog.**

INSTRUCTIONS TO PLAY:

1. Players will select a marker and place them on start.
2. At his/her turn, each student will select a card and must say if it is an AUTHOR, TITLE, or SUBJECT card. (The captain of the cooperative learning group will hold the answer key and check for correctness). If the player has the right answer, he/she will then find the correct drawer for his/her card. The number on the drawer will determine how many spaces he/she will move his/her marker.

3. Black-Out Cards: if a player lands on a black space, the the player must draw a Black-out card, which may say "Go BACK THREE SPACES," or "LOSE ONE TURN."

EXAMPLE OF GAME BOARD



C. C. WORM

EXAMPLE OF ACTIVITY CARD:

EXAMPLE CARD

QUESTION: What is the only mammal that can fly?

SUBJECT: Mammals

ANSWER: BAT

VOLUME: M

LEARNING CENTER # 4

MEDIUM: **MAP AND GLOBE SKILLS**

REFERENCE SKILLS

PARTS OF A BOOK

Contents: activity sheets including various skills listed in Medium.
Answer Key

OBJECTIVE: **to further develop skills in using maps and globes; to practice using various reference sources; to identify parts of a book.**

INSTRUCTIONS:

Teammates will study together and quiz each other to be sure that all team members have a basic understanding of these skills. Team members must demonstrate to each other their knowledge and understanding of the skills in this learning center.

LEARNING CENTER # 5

MEDIUM: **Illustrated Library Activity Cards, T. S. Denison and Company, Inc., Minneapolis, Minn.**

Contents: 48 cards, illustrated in color, covering the following areas:

Alphabetizing
Call Numbers
Map and Globe Skills
Almanacs
Atlases
Books and their Index
Card Catalog
Dictionaries
Encyclopedias

OBJECTIVE: **to give students practice in using maps and globes, almanacs, atlases, indexes, card catalog, dictionaries, and encyclopedias.**

INSTRUCTIONS:

The captain of the cooperative learning group will pass out three cards to each member. The members will then find the answers by using the appropriate source, then report back to the group. Each member shares cards and answers and source with other members.

EXAMPLE OF ACTIVITY CARD:

25.

FIND THE EQUATOR ON THE GLOBE. DRAW A SIMPLE PICTURE OF THE EARTH AND PUT IN THE EQUATOR.

LEARNING CENTER # 6

MEDIUM: Video - Library Research Skills, Society for Visual Education, Inc.

This video is a multimedia series devoted to a step by step approach to understanding the library and research resources it offers.

Series Objectives

* to introduce basic research skills.
* to review how to use card catalog.
* to review how to use encyclopedia, almanac, and atlas.

Suggested Grade Level

Grades 4 and 5

Program # 1: Exploring the Library 15:41 Minutes

This program concentrates on giving the student an understanding of the organization of a library.

Key Words: Fiction/Non Fiction
Dewey Decimal System
Biography

Program # 2: Start Your Research 13:40 minutes

This program explains how to select a research topic, labels the parts of a book, describes the parts of a book, and describes

how to use a card catalog.

Key Words: Research Topics
Card Catalog
Subject, Author, and Title Card
Table of Contents
Index

Program # 3: Introduces Other Sources 15 minutes

This program discusses the use almanacs and atlases.

Key Phrases: Choosing the Right Source
Using the Index of an Almanac
Interpreting Information from an almanac
Using an Atlas

Program # 4: Confirming Your Research (only the first 10 minute portion was used)

The portion of this program used discussed the use of encyclopedias and cross-references.

Key Phrase: Using the Encyclopedia Index

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